

CLAIMS

What is claimed is:

1. A method for optimizing data transmission in a wireless digital communication system including a base station and a plurality of user equipment (UEs), the method comprising:

- (a) receiving blocks of downlink data at the base station for distribution to the plurality of UEs;
- (b) transmitting from the base station to at least one UE having a pending downlink transmission, a request for a downlink channel quality measurement;
- (c) the at least one UE measuring and reporting the downlink channel quality to the base station;
- (d) the at least one UE receiving a downlink physical channel allocation signal from the base station;
- (e) the at least one UE setting up transmission parameters based on the downlink physical channel allocation; and
- (f) the at least one UE receiving blocks of the downlink data from the base station in accordance with the downlink physical channel allocation.

2. The method of claim 1 wherein the allocation signal indicates a particular coding rate, modulation type and at least one allocated slot.

3. The method of claim 1 further including:

- (g) prioritizing transmissions to be made from the base station to respective ones of the plurality of UEs having pending downlink transmissions.

4. A wireless digital communication system for optimizing data transmission, the system comprising:

- (a) a plurality of user equipment (UEs); and
- (b) a base station in communication with the UEs, the base station further

comprising:

(b1) means for receiving blocks of downlink data for distribution to the plurality of UEs;

(b2) means for transmitting to at least one of the UEs having a pending downlink transmission, a request for a downlink channel quality measurement;

(b3) means for receiving from the at least one UE having a pending downlink transmission, a report of the results of the downlink channel quality measurement;

(b4) means for transmitting to the at least one UE having a pending downlink transmission, a downlink physical channel allocation signal; and

(b5) means for transmitting to the at least one UE having a pending downlink transmission, blocks of the downlink data from the base station in accordance with the downlink physical channel allocation signal.

5. The system of claim 4 wherein the allocation signal indicates a particular coding rate, modulation type and at least one allocated slot.

6. The system of claim 4 wherein the base station further includes:

(b6) means for prioritizing transmissions to be made to respective ones of the plurality of UEs having pending downlink transmissions.

7. A method for optimizing data transmission in a wireless digital communication system including a base station and a plurality of wireless devices, the method comprising:

(a) receiving blocks of downlink data at the base station for distribution to a plurality of wireless devices;

(b) transmitting from the base station to a wireless device having a pending downlink transmission, a request for a downlink channel quality measurement;

(c) the wireless device having a pending downlink transmission measuring and reporting the downlink channel quality to the base station;

- (d) the base station signaling a downlink physical channel allocation to the wireless device having a pending downlink transmission;
- (e) the wireless device having a pending downlink transmission setting up transmission parameters based on the downlink physical channel allocation; and
- (f) the wireless device having a pending downlink transmission receiving blocks of the downlink data from the base station in accordance with the downlink physical channel allocation.

8. The method of claim 7 wherein the signaled allocation indicates a particular coding rate, modulation type and at least one allocated slot.

9. The method of claim 7 further including:

- (g) prioritizing transmissions to be made from the base station to respective ones of the plurality of wireless devices having pending downlink transmissions.

10. A method for optimizing data transmission in a wireless digital communication system including a base station and a plurality of user equipment (UEs), the method comprising:

- (a) receiving blocks of downlink data at the base station for distribution to a plurality of UEs;
- (b) sending an allocation signal indicating parameters including a particular coding rate, modulation type and at least one allocated timeslot to ones of the UEs having a pending downlink transmission;
- (c) the UEs having a pending downlink transmission setting up transmission characteristics based on the indicated parameters; and
- (d) the UEs having a pending downlink transmission receiving blocks of the downlink data from the base station in accordance with the parameters.

11. The method of claim 10 wherein the blocks of data are distributed from the

base station to the UEs on a prioritized basis.

12. The method of claim 10 further comprising:

(e) transmitting from the base station to the UEs having a pending downlink transmission, a request for a downlink channel quality measurement; and

(f) the UEs measuring and reporting the downlink channel quality to the base station, wherein the UEs are prioritized based on the downlink channel quality measurements.

13. A wireless digital communication system for optimizing data transmission, the system comprising:

(a) a base station; and

(b) a plurality of user equipment (UEs) in communication with the base station, each UE further comprising:

(b1) means for receiving a request from the base station for a downlink channel quality measurement;

(b2) means for measuring and reporting the results of the downlink channel quality measurement to the base station;

(b3) means for receiving a downlink physical channel allocation signal from the base station;

(b4) means for setting up transmission parameters based on the downlink physical channel allocation signal; and

(b5) means for receiving blocks of the downlink data from the base station in accordance with the set transmission parameters.

14. The system of claim 13 wherein the allocation signal indicates a particular coding rate, modulation type and at least one allocated slot.